

| | |
|-----------|----------------|
| APPROVED | O. G. FIG. |
| BY | CLASS SUBCLASS |
| DRAFTSMAN | |

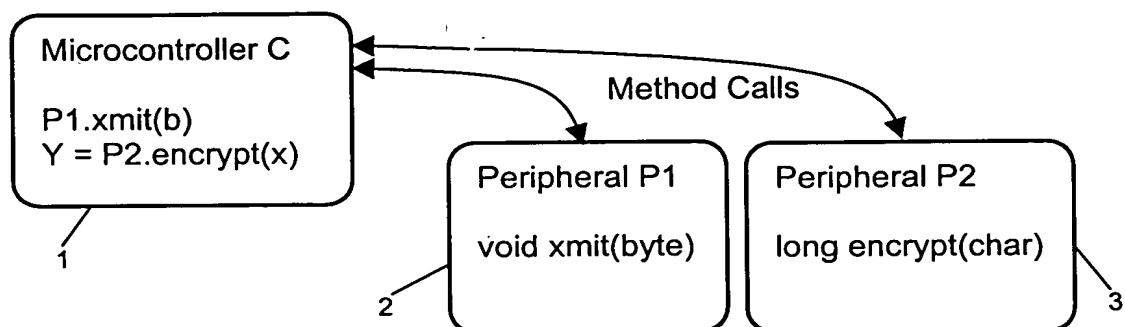


FIG. 1A
PRIOR ART

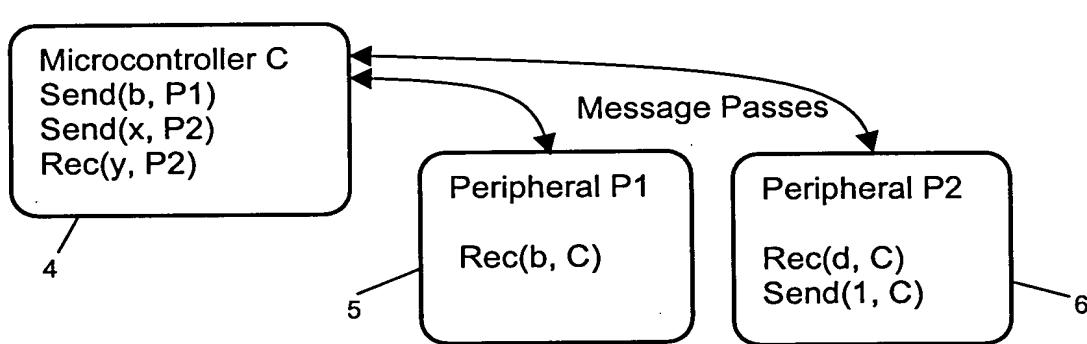


FIG. 1B
PRIOR ART

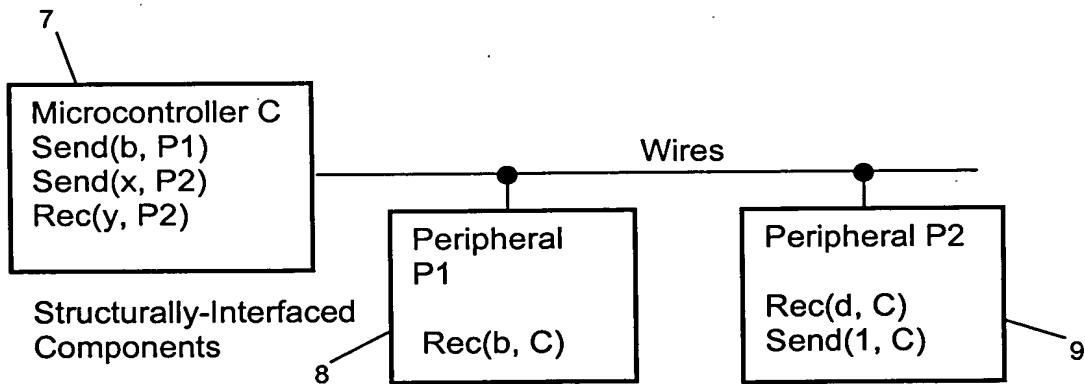


FIG. 1C
PRIOR ART

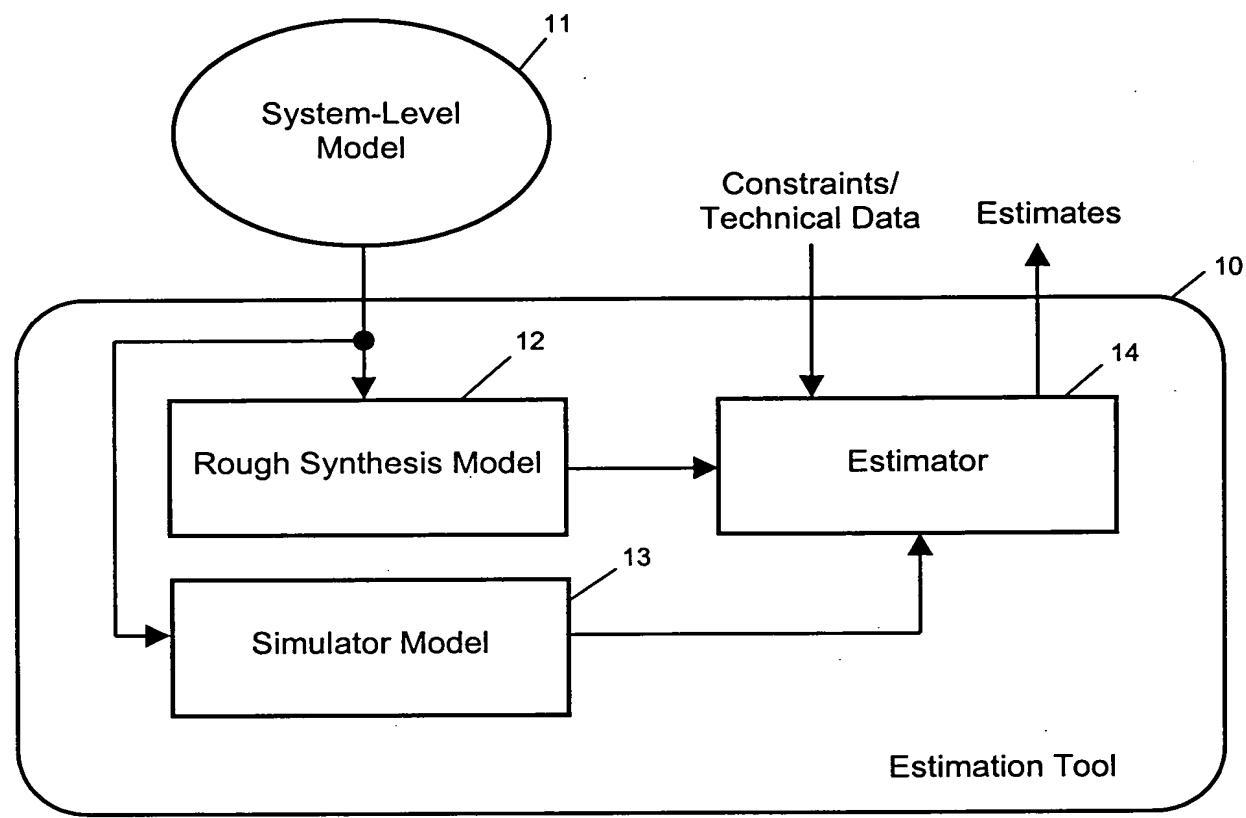


FIG. 2
PRIOR ART

| Buffer Size (bytes) | Area (transistors) | Toggle-Count |
|---------------------|--------------------|--------------|
| 2 | 4552 | 203 |
| 4 | 7360 | 232 |
| 8 | 1576 | 238 |
| 16 | 22600 | 249 |

FIG. 3

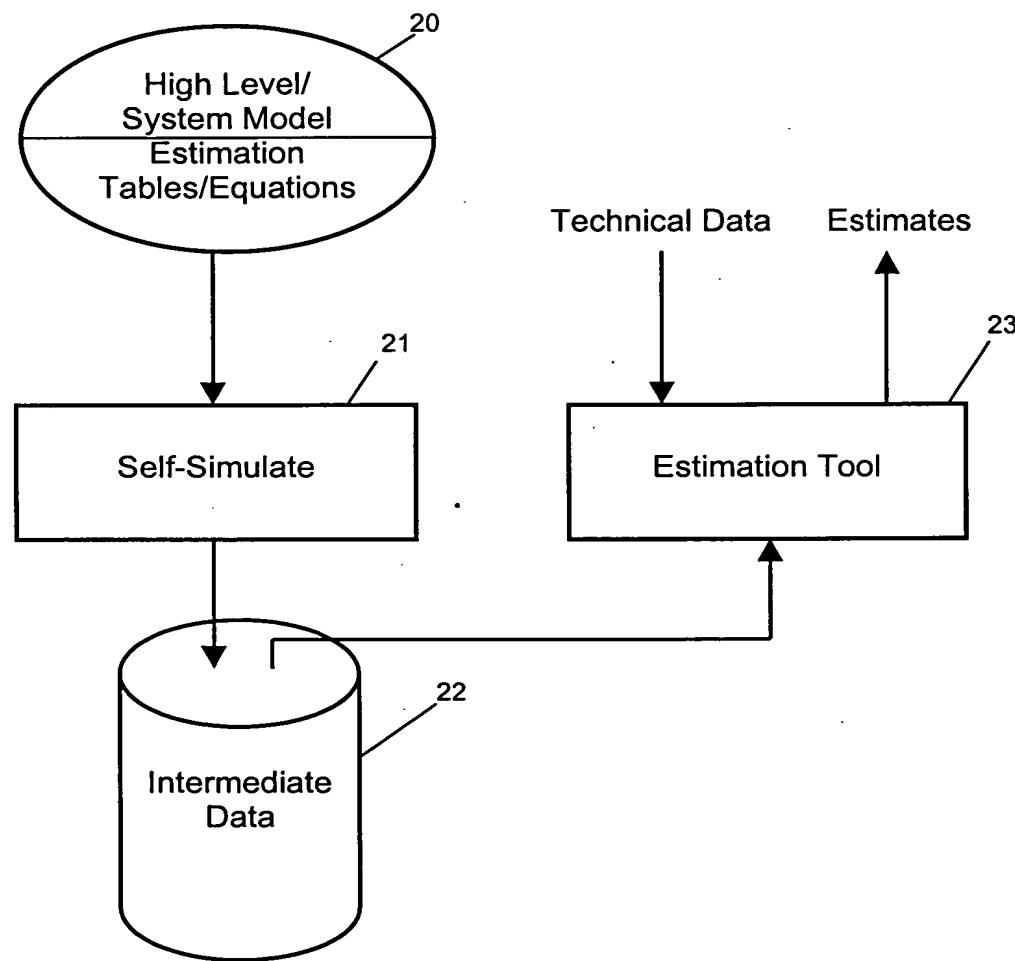


FIG. 4

APPROVED C.G. FIG
CLASS SUBCLASS
2017/01/01

```
class UART {
    unsigned toggle_count = 0;
    public Reset() {
        data_txbuf = 0, data_rxbuf = 0;
        toggle_count += TOGGLE_TABLE[RESET];
    }
    public EnableTx() {
        for( int i = 0; i < 8; i++ )
            s_out = (data_txbuf >> i) & 0x01;
        toggle_count += TOGGLE_TABLE[ENABLETX];
    }
    public WriteTxBuf(unsigned char x) {
        data_txbuf = x;
        toggle_count += TOGGLE_TABLE[WRITEBUF];
    }
    public ReadRxBuf(unsigned & x) {
        // implementation of reading character from buffer
        toggle_count += TOGGLE_TABLE[READBUF];
    }
};
```

FIG. 5

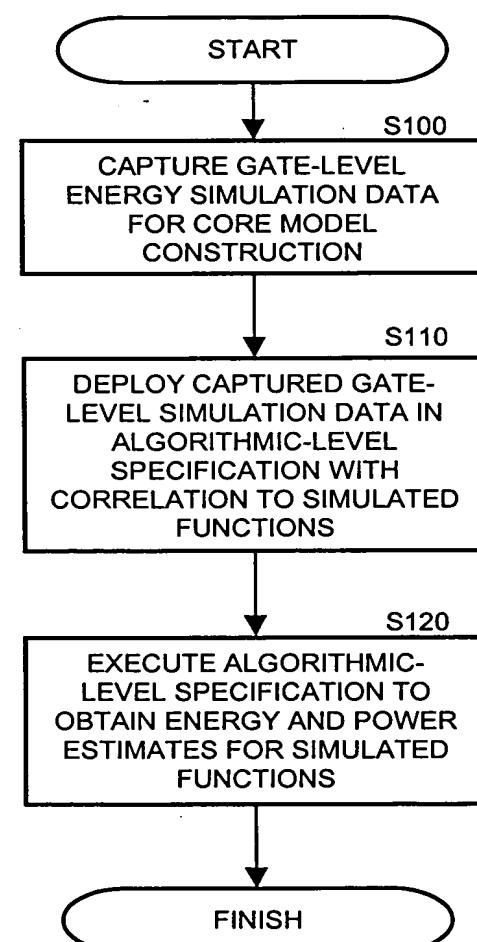


FIG. 6

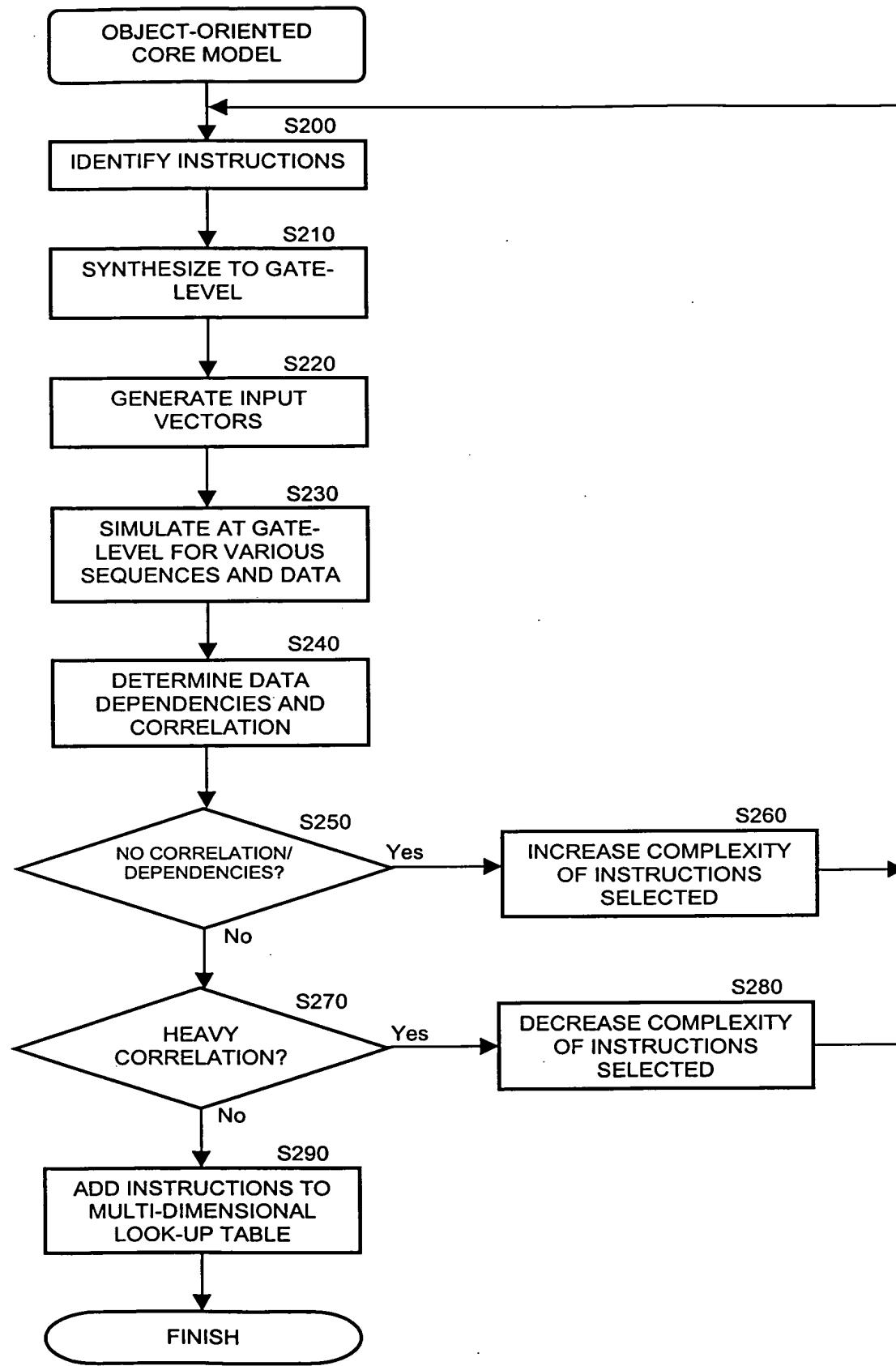


FIG. 7

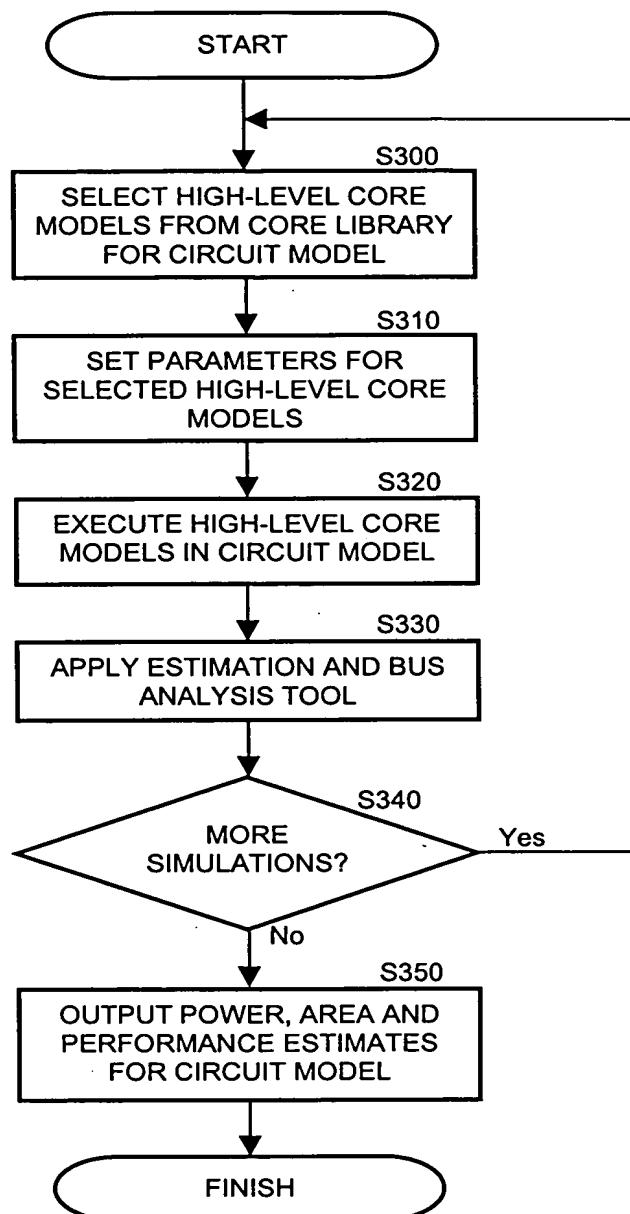


FIG. 8

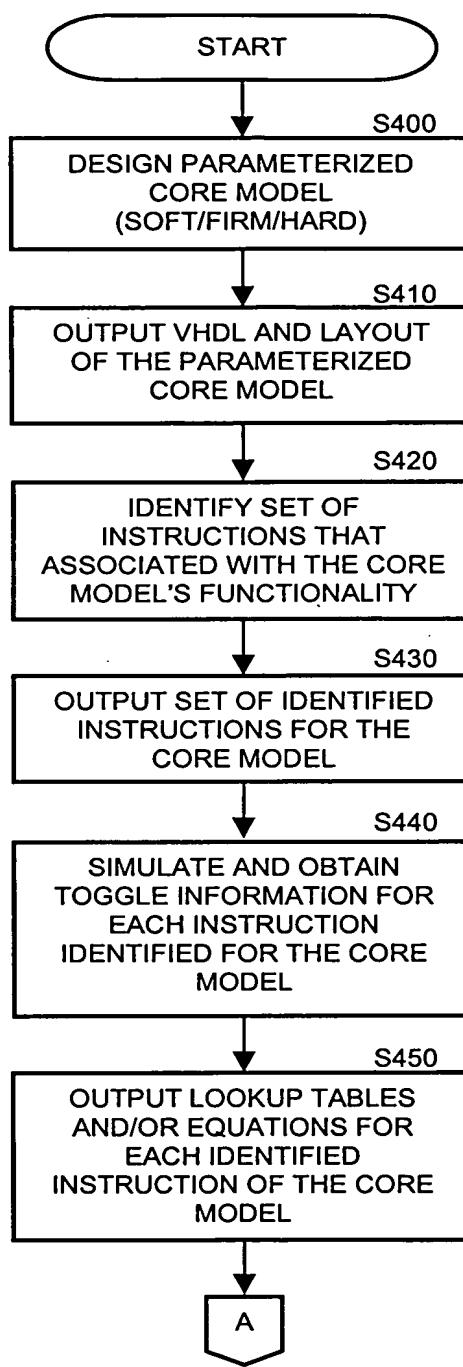


FIG. 9A

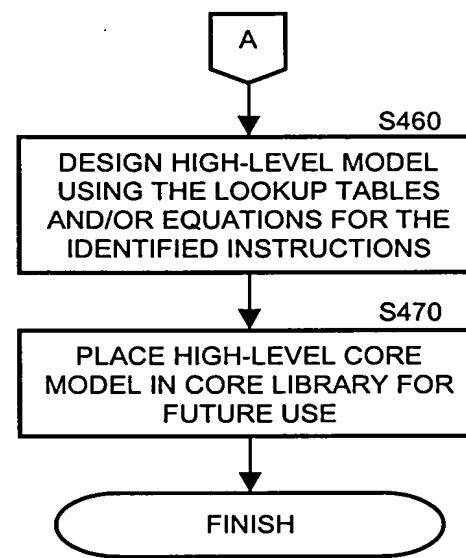


FIG. 9B

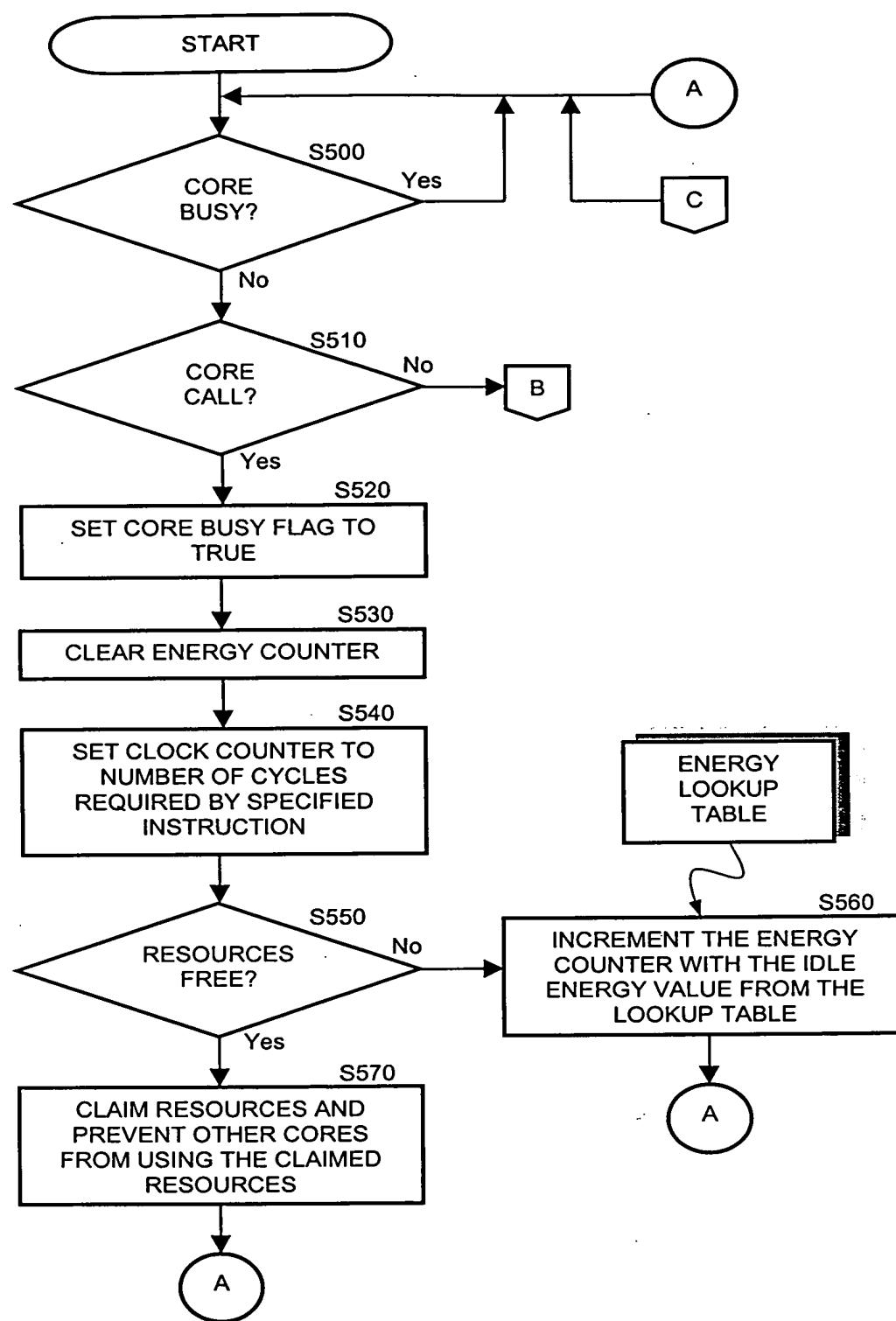


FIG. 10A

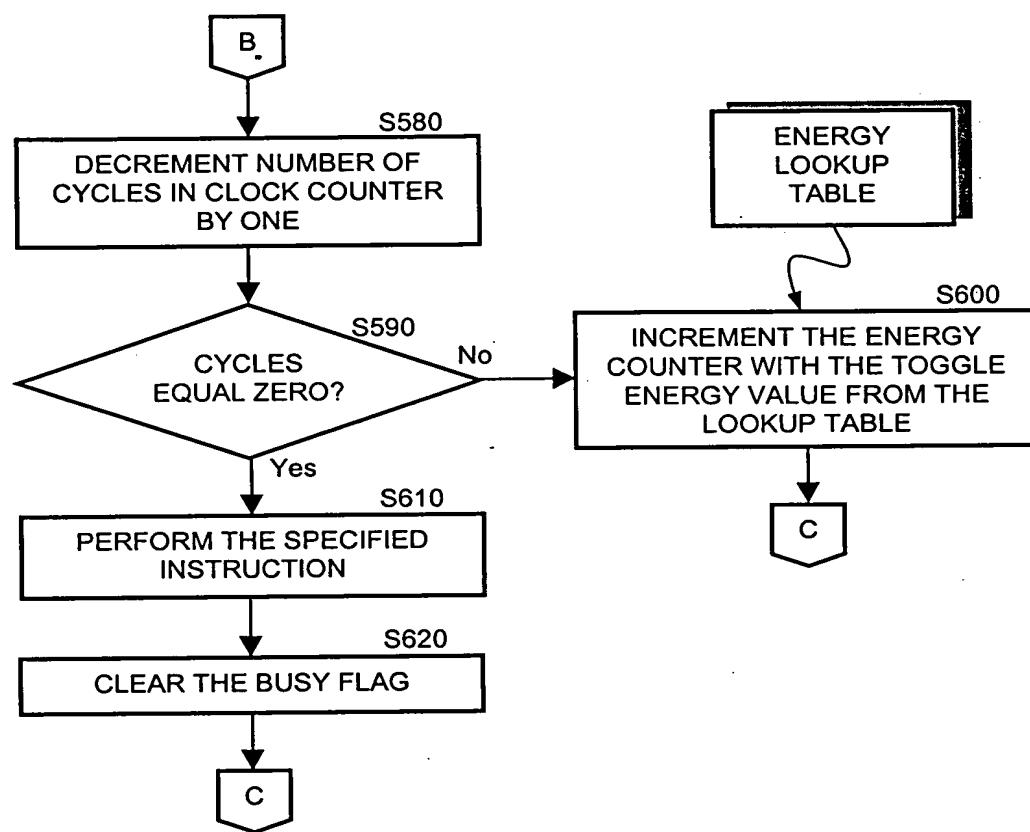


FIG. 10B

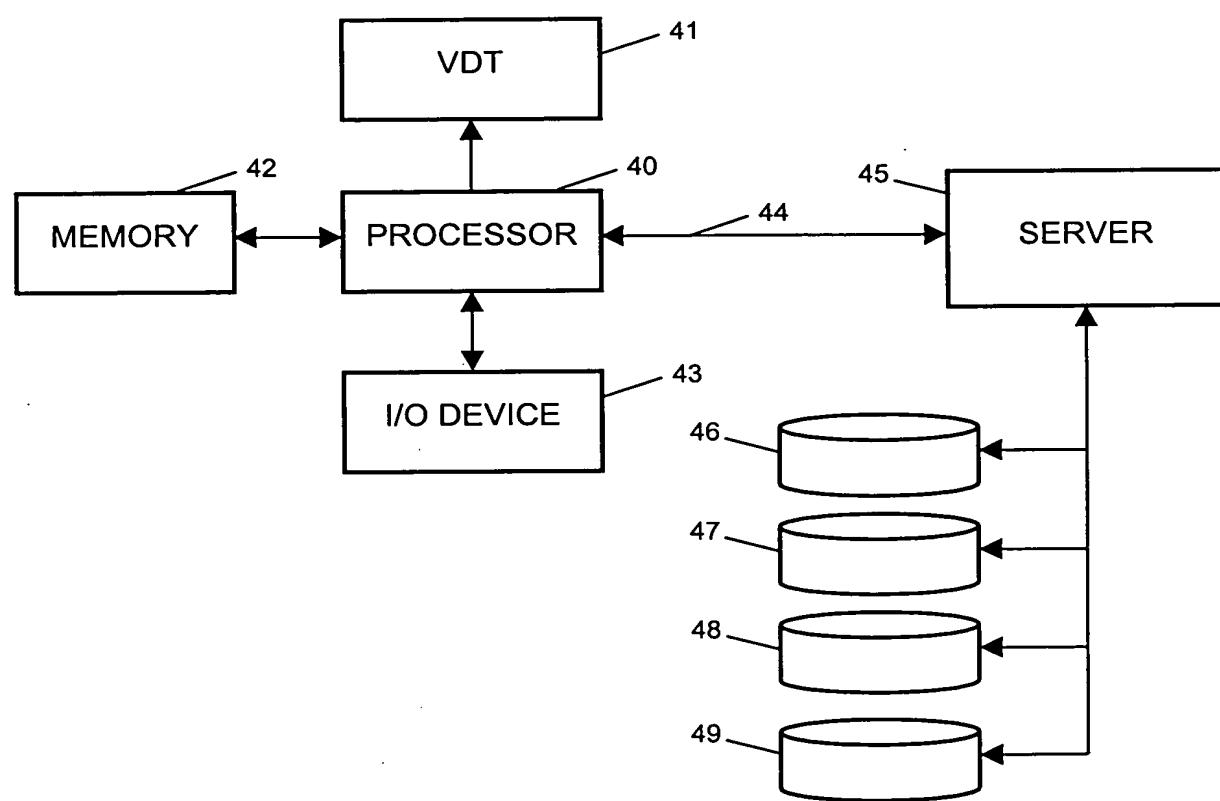


FIG. 11

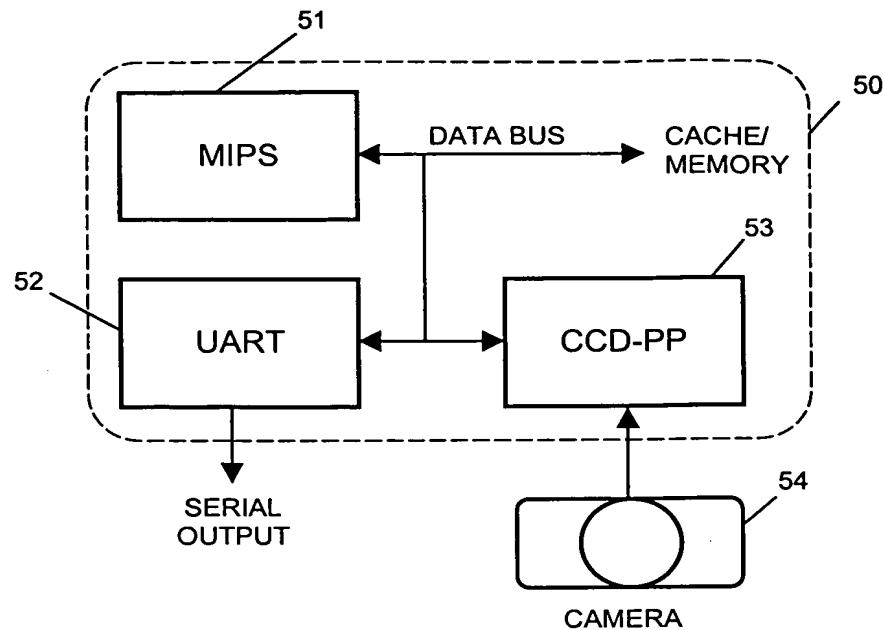


FIG. 12

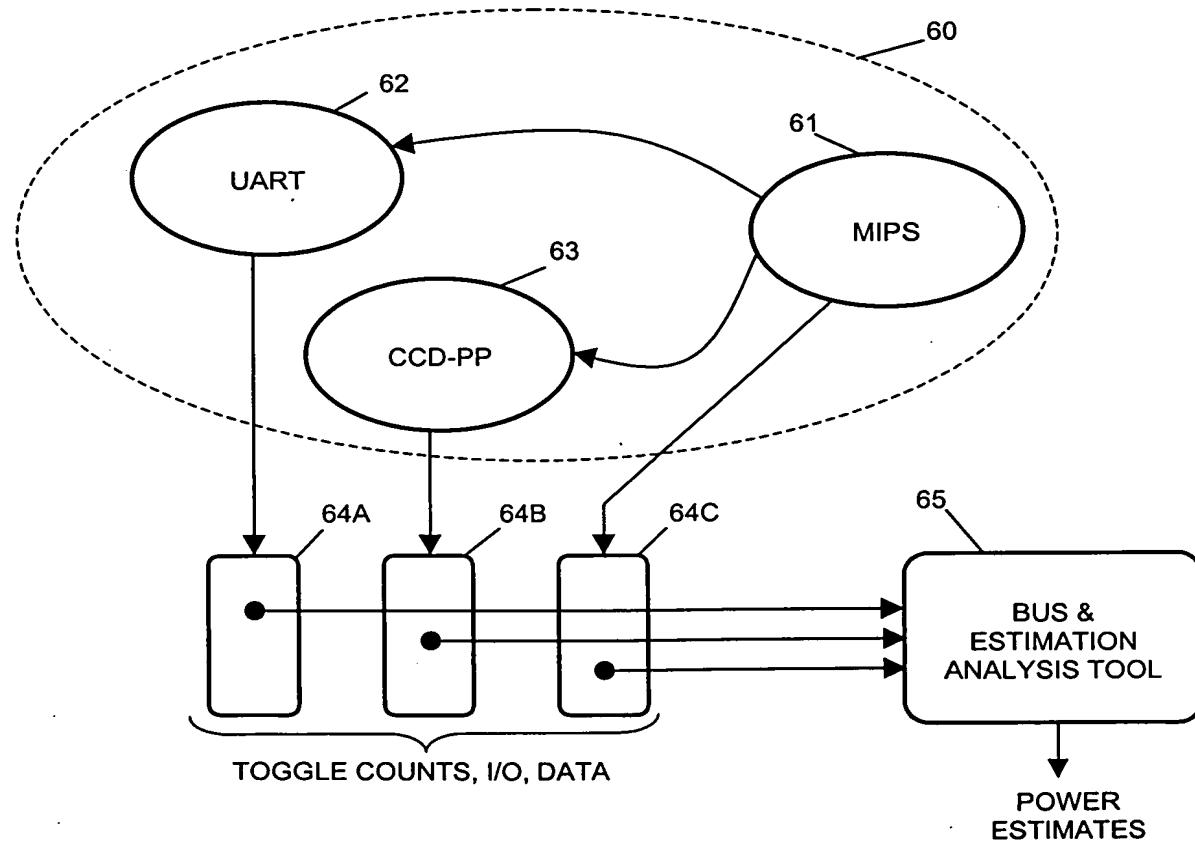


FIG. 13